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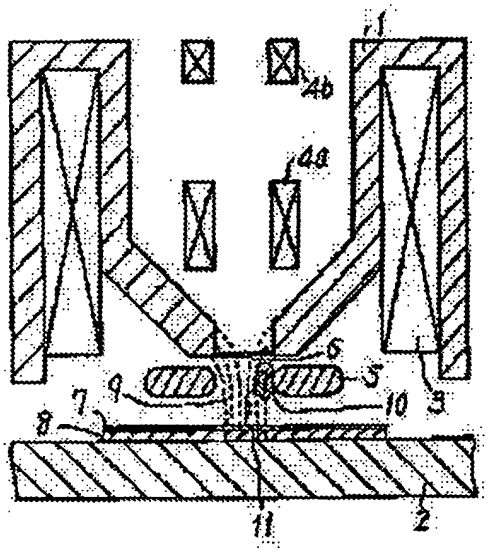
(54) SCANNING ELECTRON MICROSCOPE OF ENVIRONMENT CONTROL TYPE

(57)Abstract:
PURPOSE: To observe an electrical insulative object without electrostatic charge even with an enlarged acceleration voltage and improve the signal-noise ratio with impression of a high voltage by installing a secondary electron sensor in a location closest to the beam incident point on a specimen.
CONSTITUTION: A ring-shaped secondary electron sensor 5 is installed between a hole- equipped magnetic pole 1 and a holeless plane magnetic pole 2 in such a way as coaxial with a pressure limiting opening 6. When an electron beam is left incident to the beam incident point 11 on a specimen 7, secondary electrons are emitted according to the surface condition of the incident point 11, follow a meandering track 10 in the form being trapped by the magnetic flux 9 of an objective lens, make motions while running against gas on the way, lose the potential energy, and enter the sensor 5. Because the sensor 5 is located closer to the point 11 than the opening 6, positive ions generated around the sensor 5 can effectively neutralize electric charges at the surface of the specimen 7 charged negatively. Even though an electron beam having a large acceleration voltage is used, therefore, it is practicable to observe any electrical insulative object without electrostatic charge, and further the signal-noise ratio can be enhanced to a great extent.



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